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琉球諸島産銹菌類に関する研究

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Uredinales of the Ryukyu Islands*
Contributions to the rust-flora of Eastern Asia, VIII

By

Naohide HIRATSUKA, NH., RH.

Professor of Phytopathology and Mycology,
Faculty of Agriculture, Tokyo University of Education;
Visiting Professor of University of the Ryukyus

and

Shun-ichi SHIMABUKURO

Professor of Phytopathology and Botany,
Faculty of Agriculture, University of the Ryukyus

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Introduction

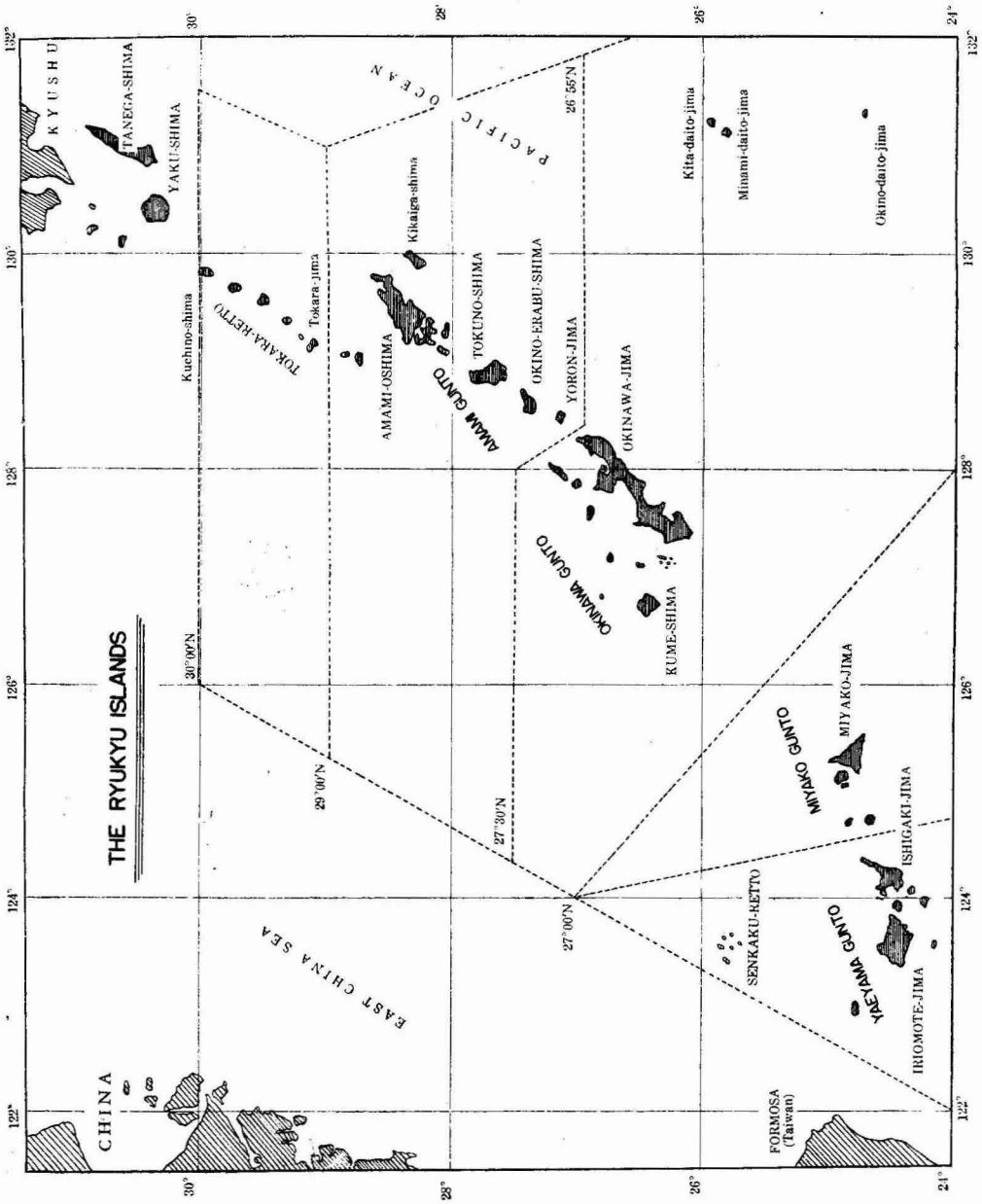
The Ryukyu Islands include several groups of small islands stretching over 800 miles between the southern end of Japan Proper and the north-eastern end of Formosa. They cover a total range of 8 degrees of longitude, from 123°E. to 131°E., and over 7 degrees of latitude, from 24°N. to 31°51'N., and are collectively called the Ryukyu Archipelago.

The islands now considered as included in the Ryukyu chain do not cover exactly the same area as the Ryukyu Archipelago. The present definition is the result of three changes since World War II.

On January 29, 1946, the Supreme Commander for the Allied Powers in Tokyo, Japan set up so-called 30°N. line cutting the Ryukyu Archipelago and calling those islands south of the line, the Ryukyu Islands. The second stage in its transition was marked by the Japanese Peace Treaty signed on September 8, 1951, under which the United States of America was authorized to propose to the U. N. that it be assigned in trusteeship the islands lying south of 29°N., and until such trusteeship be granted, to continue to administer the islands. The last change was brought about on December 25, 1953, when Amami-gunto was returned to Japan. The area which is now called the Ryukyu Islands is exactly the same as what was previously known as Okinawa Prefecture under the Japanese Government. It consists of the three main groups of islands, viz., Okinawa-gunto, Miyako-gunto and Yaeyama-gunto.

In the present paper, the Ryukyu Islands is presented not as it is now, but as it was when it covered that area below 29°N. in the Ryukyu Archipelago. However, our mycological survey did not extend to every island in this area. The islands which the authors and their co-workers explored were Amami-oshima, Okinawa-jima, and Ishigaki-jima, but completeness of survey was greatest in Okinawa-jima. It is expected that more interesting species will be added by future mycological explorations of the other islands. The authors will in future make the region of their survey to coincide with the area covered by the whole Ryukyu Archipelago disregarding political nomenclature.

Studies on the rust fungi of the Ryukyu Islands were first undertaken by our pioneer, the late Dr. Naoharu Hiratsuka, the senior author's father in 1899 to 1900. From September 1899 to April 1900, Dr. Hiratsuka lived in Shuri-shi, Okinawa Island, as a teacher of Okinawa Middle School. During his stay in the island,



Text-fig. 1. A map of the Ryukyu Islands.

he made many mycological surveys, and collected especially the rust fungi in the vicinity of Shuri-shi. In 1900, he (2) described *Phakopsora Ehretiae* Hiratsuka on leaves of *Ehretia ovalifolia* Hassk., based upon specimens which were collected by himself and Mr. S. Maeda, one of his pupils at Shuri-Castle in the island. His paper was entitled, "Notes on some Melampsorae of Japan, III. Japanese species of *Phakopsora*." It is the first account of the rust fungi from the Ryukyu Islands.

Since that date and up to 1940, one species has been recorded by Mr. T. Miyake (20), four by Dr. S. Ito (15~19), one by Dr. P. & H. Sydow (21), and four by the senior author (3~6). These records were mostly based on collections made by Dr. Hiratsuka and Mr. Tetsuo Miyagi, preserved in the Herbarium of the Botanical Institute, Faculty of Agriculture, Hokkaido University, Sapporo, Japan. These species which were recorded from the islands during the years 1900 to 1940 total nine. They are as follows: 1) *Phakopsora Ehretiae* Hiratsuka, 2) *Coleosporium Asterum* (Diet.) Sydow, 3) *Poliotetium hyalospora* (Sawada) Mains, 4) *Puccinia congesta* Berkeley et Broome, 5) *P. Lophatheri* (Syd.) Hiratsuka, f. (*Diorchidium Lophatheri* Syd.), 6) *P. levigata* (Syd. et Butl.) Hiratsuka, f. (*Diorchidium levigatum* Syd. et Butl.), 7) *P. Oenanthes-stoloniferae* S. Ito (*P. Oenanthes* T. Miyake), 8) *P. Ophiopogonis* Cummins (*Uredo Ophiopogonis* Syd.), and 9) *Uromyces appendiculatus* (Pers.) Unger (*Uromyces appendiculatus* Link).

The first attempt at a collective account of the rust fungi of the Ryukyu Islands was that of the senior author in 1940. In his papers, "Materials for a rust-flora of Riukiu Islands, I & II." (1940), he recorded nineteen genera and seventy-six species of rust fungi (including species from Amami-oshima Isl.). These records were based upon a part of the collections made by the senior author and Mr. Yoshihisa Taira in different localities of Okinawa Island from January to April of the same year.

In 1941, the senior author (10) published "Uredinales of Okinawa Island", based upon not only the specimens, collected by himself and Mr. Taira, but also specimens collected by Dr. Hiratsuka, Mr. Miyagi and others. In this paper, twenty genera and ninety-six species of the rust fungi, including three new species were recorded from Okinawa Island.

In April, 1953, the senior author accepted an invitation from the University of the Ryukyus, as a visiting Professor, and he stayed in Okinawa Island, for about two months. During this period, he collected many specimens of the rust fungi in the island, with the junior author. Upon the return of the senior author to Tokyo,

the junior author continued to make collection of the rust fungi from different localities of Okinawa and Miyako Islands. In addition, Messrs. Torataro Tamotsu, Masatoshi Nagayama, Yoshima Niro and other gentlemen, kindly sent to the authors some interesting and valuable specimens.

Table. 1 Number of species of rust fungi found in the Ryukyu Islands.

Families	Genera	Previously reported	Present additions	Total	
Melampsoraceae	Uredinopsis	0	1	1	32
	Milesina	2	1	3	
	Hyalopsora	1	0	1	
	Pucciniastrum	1	2	3	
	Phakopsora	7	2	9	
	Crossopsora	0	2	2	
	Coleopucciniella	1	1	2	
	Dasturella	1	0	1	
	Coleosporium	8	2	10	
	Pucciniaceae	Skierka	1	0	
Didymopsorella		1	0	1	
Kuehneola		1	1	2	
Hamasporea		2	1	3	
Poliotelium		1	0	1	
Maravalia		0	1	1	
Phragmidium		2	0	2	
Hemileia		1	0	1	
Gymnosporangium		0	1	1	
Xenosteles		0	1	1	
Pileolaria		1	0	1	
Ravenelia		2	0	2	
Uromyces		15	8	23	
Puccinia		49	19	68	
Endophyllum		1	0	1	
Uredinales Imperfecti	Accidium	4	7	11	18
	Uredo	3	4	7	
Total		106	54	159	

The above table shows the number of species, by genera, previously known from the Ryukyu Islands, together with those recorded in the present paper. As shown in the table, the rust-flora of the Ryukyu Islands is made up of 26 genera and 159 species including 18 species of the two form-genera, *Accidium* and *Uredo*. Among them, 54 species are considered as new additions to the flora of the Ryukyu Islands, and the following three species are ascertained to be species new to science:—1) *Hamasporea okinawensis* Hiratsuka, f., 2) *Puccinia Caricis-Boottianae* Hiratsuka, f. and 3) *Uredo thermopsidicola* Hiratsuka, f. and, the following species is treated as new combination:—*Didymopsorella lemanensis* (Doidge) Hiratsuka, f.

The specimens studied are all kept in the Hiratsuka Herbarium, Tokyo, Japan, and duplicates of those specimens are deposited in the Herbarium of the University of the Ryukyus.

The authors wish to acknowledge their indebtedness to Dr. George B. Cummins of Purdue University (Lafayette, Indiana, U.S.A.) for his kind advice. They are also indebted to Prof. S. Kitamura (Kyoto University, Kyoto, Japan), Dr. J. Ohwi (National Science Museum, Tokyo, Japan), and Mr. Shinjun Tawada for identification of host plants of the fungi, and to Messrs. Yoshihisa Taira, Torataro Tamotsu, Masatoshi Nagayama, and Yoshima Niro who collected many of the fungi. Acknowledgements are also due to Mr. Chosho Goya, President of the University of the Ryukyus for making available the facilities of the University in order that this research might be carried out.

Enumeration of species

MELAMPSORACEAE

Uredinopsis Magnus, 1893

1. *Uredinopsis macrosperma* Magnus in Hedwigia, XLIII, p. 122, 1904.

Hab. II, (III). On *Pteridium aquilinum* Kühn var. *japonicum* Nakai (*Warabi*). Okinawa Isl.: Higashi-mura (June 12, 1953, H. f. & S. S.¹⁾, no. 1039); Mt. Yonaha-dake (May 30, 1953, H. f. & S. S., no. 1038).

Milesina Magnus, 1909

2. *Milesina microspora* Hiratsuka, f. in Bot. Mag. Tokyo, XLVIII, p. 43, 1934. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 157, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 18, 1941).

Hab. II, III. On *Cyclosorus acuminatus* Nakai (*Dryopteris acuminata* Nakai) (*Ho-shida*). Okinawa Isl.: Mt. Katsuu-dake (Jan. 14, 1940, H. f., nos. 223, 227 & 247); Haneji-mura (April 8, 1940, Y. T., no. 423); Nakijin-mura (April 15, 1940, Y. T., no. 462).

3. *Milesina Odontosoriae* Hiratsuka, f. in Bot. Mag. Tokyo, XLVIII, p. 46, 1934. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 157, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 18, 1941).

Hab. II, (III). On *Stenoloma chusanum* Ching (*Odontosoria chinensis* Sm. var. *tenuifolia* Mak.) (*Hora-shinobu*). Okinawa Isl.: Mt. Onna-dake (Jan. 12, 1940, H. f., no. 83); Kunigami-son (May 29, 1953, H. f. & S. S., no. 1037).

1) The following abbreviations are used for the name of the collectors most frequently named in the list: H. f.=Naohide Hiratsuka (平塚直秀); S. S.=Shun-ichi Shimabukuro (島袋俊一); Y. T.=Yoshihisa Taira (平良芳久); T. T.=Torataro Tamotsu (保 虎太郎); Y. N.=Yoshima Niro (新納義馬).

4. *Milesina philippinensis* Sydow apud Sydow & Petrak in Ann. Myc. XXIX, p. 172, 1931.

Hab. II, (III). On *Nephrolepis cordifolia* Presl. (*Tama-shida*). Okinawa Isl.: Shuri-shi (April 29, 1953, H. f., no. 1045).

Hyalopsora Magnus, 1901

5. *Hyalopsora Polypodii* (Diet.) Magnus in Ber. Deutsch. Bot. Ges. XIX, p. 582, 1901. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 373, 1940).

Syn. *Pucciniastrum Polypodii* Dietel in Hedwigia, XXXVIII, p. (260), 1899.

Uredo orientalis Raciborski in Bull. Acad. Sci. Cracovie Cl. Sci. math. et nat. (1909), p. 279, 1909; Ito, Myc. Fl. Jap. II, no. 3, p. 347, 1950.

Hab. II, (III). On *Blechnopsis orientalis* Presl (*Hiryu-shida*). Okinawa Isl.: Mt. Taniu-dake (June 12, 1953, H. f. & S. S., nos. 844 & 846); Mt. Yonaha-dake (May 30, 1953, H. f. & S. S., no. 845).

II, (III). On *Diplazium oshimense* H. Ito (*Shike-shida*). Okinawa Isl.: Motobu-machi (April 15, 1940, Y. T., no. 458).

Pucciniastrum Otth, 1861

6. *Pucciniastrum Actinidiae* Hiratsuka, f. in Mem. Tottori Agric. Coll. IV, p. 279, 1936; Jour. Jap. Bot. XXVII, p. 111, 1952.

Hab. II, III. On *Actinidia rufa* Planch. (*Nashikadzura*). Okinawa Isl.: Kunigami-son (Oct. 14, 1953, S. S., no. 1010).

7. *Pucciniastrum Agrimoniae* (Diet.) Tranzschel in Script. Bot. Hort. Univ. Petropol. IV, p. 301, 1895. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 157, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 18, 1941).

Syn. *Thekopsora Agrimoniae* Dietel in Hedwigia, XXIX, p. 152, 1890.

Hab. II, (III). On *Agrimonia pilosa* Ledeb. var. *japonica* Nakai (*Kinmidzuhiki*). Amami-oshima Isl.: Mikata-mura (July 23, 1936, T. T., no. 1118). Okinawa Isl.: Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 226).

8. *Pucciniastrum Styracinum* Hiratsuka in Bot. Mag. Tokyo, XII, p. 32 & pl. II, figs. 7~13, 1898.

Hab. II, III. On *Styrax japonica* Sieb. et Zucc. (*Ego-no-ki*). Amami-oshima Isl.: Kasari-mura (Dec. 25, 1953, Y. N., no. 1172).

II, III. On *Styrax japonica* var. *kotoensis* Masam. (*Styrax kotoensis* Hayata) (*Koto-egonoki*). Okinawa Isl.: Mt. Taniu-dake (June 12, 1953, H. f. & S. S., no. 843); Iji-aza, Kunigami-son (Oct.

14, 1953, S. S., no. 1014); Mt. Nago-dake (Nov. 27, 1953, S. S., no. 1199).

Phakopsora Dietel, 1895

9. **Phakopsora Ampelopsidis** Dietel et Sydow apud Dietel in Hedwigia, XXXVII, p. 217, 1898. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 157, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 19, 1941).

Hab. II, III. On *Ampelopsis brevipedunculata* Trautv. var. *Maximowiczii* Rehd. (*Ampelopsis heterophylla* Sieb. et Zucc.) (*No-budo*). Amami-oshima Isl.: Nase-shi (Oct., 1936, T. T., no. 1159); Tatsugomura (Dec. 28, 1953, Y. N., 1178). Okinawa Isl.: Mawashi-mura (Jan. 12, 1940, H. f., no. 49); Kanegusuku-mura (Jan. 21, 1940, H. f., no. 196). Miyako Isl.: Shimajiri-aza, Taira-shi (Aug. 5, 1953, S. S., no. 1019); Miyaguni-aza, Ueno-mura (Aug. 5, 1953, S. S., no. 1018).

10. **Phakopsora Artemisiae** Hiratsuka, f. in Jap. Jour. Bot. III, p. 298, 1927. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 157 & 377, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 19, 1941).

Hab. II, (III). On *Artemisia dubia* Wall. (*Artemisia asiatica* Nakai) (*Yomogi*). Okinawa Isl.: Haneji-mura (Jan. 13, 1940, H. f., no. 209); Mawashi-mura (Jan. 22, 1940, H. f., no. 331).

II, (III). On *Artemisia japonica* Thunb. (*Otoko-yomogi*). Okinawa Isl.: Urazoe-mura (March 13, 1940, Y. T., no. 390).

11. **Phakopsora Ehretiae** Hiratsuka in Bot. Mag. Tokyo, XIV, p. 91 & pl. III, figs. 10~13, 1900. (Hiratsuka, f. in Bot. Mag. Tokyo, L, p. 3, 1936; LIV, p. 158, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 19, 1941).

Syn. *Bubakia Ehretiae* Ito apud Ito & Homma in Transact. Sapporo Nat. Hist. Soc. XV, p. 116, 1938.*

Hab. II, III. On *Ehretia ovalifolia* Hassk. (*Ehretia thyrsoiflora* Nakai, *E. taiwaniana* Nakai, *E. acuminata* Auct.) (*Chisha-no-ki*). Okinawa Isl.: Shuri-shi (Jan. 7, 1899, Naoharu Hiratsuka, nos. 1046, 1047 & 1048; Jan. 11, 1940, H. f., nos. 37 & 38; Jan. 10, 1940, H. f., nos. 1, 9 & 10); Mawashi-mura (Jan. 22, 1940, H. f., no. 327); Kanegusuku-mura (Jan. 21, 1940, H. f., nos. 194 & 200).

II, III. On *Ehretia Dicksonii* Hance. var. *japonica* Nakai (*Maruba-chisha-no-ki*). Kume-jima Isl.: Gushikawa-son (March 7, 1954, S. S., no. 1223). Ishigaki Isl. (March 6, 1925, T. Miyagi, no. 1050). Miyako Isl.: Shimochi-cho (Aug. 2, 1953, S. S., no. 1017).

12. **Phakopsora Fici-erectae** Ito et Otani in Bot. & Zool. IX, p.

663 & text-fig. 2, 1941 (nom. seminud.); Ito & Murayama in Transact. Sapporo Nat. Hist. Soc. XVIII, p. 85, 1949.

Hab. II, III. On *Ficus erecta* Thunb. (*Inu-biwa*). Okinawa Isl.: Shuri-shi (Oct. 31, 1953, S. S., no. 1016).

II, (III). On *Ficus* sp. Okinawa Isl.: Mawashi-mura (Jan. 22, 1940, H. f., no. 336).

13. **Phakopsora formosana** Sydow in Ann. Myc. XII, p. 109, 1914. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 19, 1941).

Hab. II, III. On *Glochidion bicolor* Hayata (*Urajiro-kankonoki*). Okinawa Isl.: Mt. Benoki-yama (April 11, 1940, Y. T., no. 439); Mt. Yonaha-dake (May 30, 1953, H. f. & S. S., nos. 939 & 940); Mt. Taniu-dake (June 12, 1953, H. f. & S. S., nos. 937 & 938).

II, III. On *Glochidion* sp. Okinawa Isl.: Shuri-shi (March 25, 1940, Y. T., no. 417).

14. **Phakopsora incompleta** (Syd.) Cummins in Mycologia, XLII, p. 786, 1950.

Syn. *Puccinia incompleta* Sydow in Ann. Myc. X, p. 261, 1912. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 28, 1941).

Puccinia Polliniae-imberbis (non Hiratsuka, f.) (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 376, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 30, 1941).

Hab. II, III. On *Ischaemum crassipes* Thell. var. *formosanum* Nakai (*Taiwan-kamonohashi*). Okinawa Isl.: Nago-machi (April 14, 1940, Y. T., no. 451; Jan. 14, 1940, H. f., no. 244).

II, (III). On *Microstegium ciliatum* A. Camus (*O-sasagaya*). Okinawa Isl.: Tomigusuku-mura (Feb. 24, 1940, Y. T., no. 364).

II, (III). On *Microstegium vimineum* A. Camus (*Hime-ashiboso*). Amami-oshima Isl.: Nase-shi (March, 1936, T. T., no. 1147).

15. **Phakopsora Malloti** Cummins in Mycologia, XLII, p. 783 & fig. 3, 1950.

Syn. *Pucciniastrum Malloti* Hiratsuka, f. in Bot. Mag. Tokyo, XLIX, p. 23, 1935.

Hab. II, (III). On *Mallotus japonicus* Müll.-Arg. (*Akame-gashiwa*). Okinawa Isl.: Shuri-shi (Jan. 10, 1940, H. f., no. 257).

16. **Phakopsora Pachyrhizi** Sydow in Ann. Myc. XII, p. 108, 1914.

Hab. II, III. On *Glycine Max* Merr. (*Glycine Soja* Benth.) (*Daidzu*) (*cult.*). Okinawa Isl.: Yogi, Mawashi-mura (May 23, 1953,

H. f. & S. S., nos. 875 & 876); Miwa-mura (May 15, 1953, H. f. & S. S., nos. 877 & 879); Haneji-mura (May 9, 1953, H. f. & S. S., no. 881); Nago-machi (Nov. 21, 1953, S. S., no. 1198); Itoman-machi (May 15, 1953, H. f. & S. S., no. 878); Takamine-mura (May 15, 1953, H. f. & S. S., no. 880).

II, III. On *Pueraria tonkinensis* Gagnep. (*Taiwan-kudzu*). Okinawa Isl.: Shuri-shi (June 9, 1953, S. S., no. 882).

17. **Phakopsora tecta** Jackson et Holway apud Jackson in Mycologia, XVIII, p. 148 & pl. XIX, 1926. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 158, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 19, 1941).

Hab. II, (III). On *Commelina communis* L. (*Tsuyu-kusa*). Okinawa Isl.: Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 253).

II, (III). On *Commelina nudiflora* L. (*Shima-tsuyukusa*). Okinawa Isl.: Kanegusuku-mura (Jan. 21, 1940, H. f., no. 317); Shuri-shi (March 25, 1940, Y. T., no. 479; May 2, 1953, H. f., no. 941).

Crossopsora Sydow, 1918

18. **Crossopsora Antidesmae-dioicae** (Syd.) Arthur et Cummins in Philippine Jour. Sci. LXI, p. 474, 1936.

Syn. *Uredo Antidesmae-dioicae* Raciborski, Parasit. Algen u. Pilze Javas, II, p. 33, 1900.

Cronartium Antidesmae-dioicae Sydow in Ann. Myc. XIV, p. 259, 1916.

Hab. II, (III). On *Antidesma japonicum* Sieb. et Zucc. (*Yamahihatsu*). Kume-jima Isl.: Gushikawa-son (March 4, 1954, S. S., no. 1210).

The present species is new to Japanese Archipelago, and *Antidesma japonicum* is a new host plant for this species.

19. **Crossopsora Malloti** (Racib.) Cummins in Mycologia, XXXII, p. 372, 1940.

Syn. *Cronartium Malloti* Raciborski, Parasit. Algen u. Pilze Javas, I, p. 23, 1900.

Hab. II, III. On *Mallotus moluccanus* Müll.-Arg. (*Yanbaru-akame-gashiwa*). Miyako Isl.: Miyagunu-aza, Ueno-mura (Aug. 3, 1953, S. S., no. 1022); Yonaha-aza, Shimochi-son (Aug. 2, 1953, S. S., no. 1021).

Coleopucciniella Hara, 1936

20. **Coleopucciniella Idei** Hiratsuka, f. in Jour. Jap. Bot. XIII,

p. 245, 1937. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 158, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 20, 1941).

Hab. III. On *Rhaphiolepis liukiensis* Nakai (*Hosoba-sharinbai*). Okinawa Isl.: Mt. Onna-dake (Jan. 12, 1940, H. f., no. 85); Mt. Kushi-dake (June 5, 1953, H. f. & S. S., no. 949); Nago-machi (May 8, 1953, H. f. & S. S., no. 950); Higashi-mura (June 13, 1953, H. f. & S. S., no. 951). Kume-jima Isl.: Gushikawa-son (March 4, 1954, S. S., no. 1225).

III. On *Rhaphiolepis umbellata* Mak. (*Sharinbai*). Okinawa Isl.: Mt. Yonaha-dake (May 30, 1953, H. f. & S. S., no. 953).

21. **Coleopucciniella simplex** (Diet.) Hara, Nippon-Gaikin-gaku, p. 262 & fig. 150, 1936 (nom. seminud.); Hiratsuka, f. in Jour. Jap. Bot. XIII, p. 245, 1937.

Syn. *Coleopuccinia simplex* Dietel in Ann. Myc. VII, p. 355, 1909.

Hab. III. On *Eriobotrya japonica* Lindl. (*Biwa*) (*cult.*). Okinawa Isl.: Nago-machi (May 9, 1953, H. f. & S. S., no. 1051).

Dasturella Mundkur et Kheswalla, 1943

22. **Dasturella divina** (Syd.) Mundkur et Kheswalla in Mycologia, XXXV, p. 202, 1943.

Syn. *Angiopsora divina* Sydow in Ann. Myc. XXXIV, p. 71, 1936. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 160, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 22, 1941).

Hab. II, (III). On *Leleba floribunda* Nakai (*Howo-chiku*) (*cult.*). Okinawa Isl.: Shuri-shi (March 25, 1940, Y. T., no. 416).

II, III. On *Leleba multiplex* Nakai (*Horai-chiku*). Okinawa Isl.: Haneji-mura (Jan. 13, 1940, H. f., nos. 203 & 204); Nawa-shi (Jan. 11, 1940, H. f., no. 29); Takamine-mura (Jan. 21, 1940, H. f., nos. 178 & 179).

II, (III). On *Leleba vulgaris* Nakai (*Daisan-chiku*). Okinawa Isl.: Mawashi-mura (March 19, 1940, Y. T., no. 409); Haneji-mura (April 8, 1940, Y. T., no. 422).

Coleosporium L veill , 1847

23. **Coleosporium Asterum** (Diet.) Sydow in Ann. Myc. XII, p. 109, 1914. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 158, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 20, 1941; Ito, Myc. Fl. Jap. II, no. 2, p. 210, 1938).

Syn. *Stichopsora Asterum* Dietel in Bot. Jahrb. XXVII, p. 566 & pl. VII, fig. 7, 1900.

Hab. II, III. On *Kalimeris indica* Schultz-Bip. (*Ko-yomena*).

Amami-oshima Isl.: Tatsugo-mura (Dec. 28, 1953, Y. N., no. 1192); Nase-shi (March, 1935, T. T., no. 1035). Okinawa Isl.: Osato-mura (Jan. 20, 1940, H. f., nos. 156 & 160); Mt. Katsuu-dake (Jan. 14, 1940, H. f., nos. 216 & 256); Nago-machi (Jan. 16, 1940, H. f., nos. 105 & 110); Onna-mura (Jan. 12, 1940, H. f., no. 80); Haneji-mura (Jan. 15, 1940, H. f., nos. 288 & 292); Kanegusuku-mura (Jan. 21, 1940, H. f., nos. 187 & 303); Nawa-shi (Jan. 19, 1940, H. f., no. 139); Mawashi-mura (Jan. 22, 1940, H. f., no. 330; May 3, 1953, H. f. & S. S., no. 957); Shuri-shi (Jan. 10, 1940, H. f., no. 16; May 2 & 23, 1953, H. f. & S. S., nos. 955 & 956).

24. **Coleosporium Bletiae** Dietel in Hedwigia, XXXVII, p. 216, 1898. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 20, 1941).

Hab. II, III. On *Calanthe tripricata* Ames. (*Tsuru-ran*). Okinawa Isl.: Mt. Benoki-yama (April 10, 1940, Y. T., no. 433).

II, III. On *Calanthe* sp. Okinawa Isl.: Mt. Yonaha-dake (Dec. 30, 1939, Y. T., no. 341).

II, III. On *Phajus Tankervilliae* Bl. (*Kwaku-ran*) (*cult.*). Okinawa Isl.: Chatan-mura (Feb. 20, 1940, Y. T., no. 354).

25. **Coleosporium Campanulae** L veill  in Ann. Sci. Nat. (III), VIII, p. 373, 1847.

Hab. II, III. On *Adenophora triphylla* DC. var. *insularis* Kitam. (*Ryukyu-shajin*). Kume-jima Isl.: Nakazato-son (March 5, 1954, S. S., no. 1214).

26. **Coleosporium Carpesii** Saccardo in Riv. Acc. di Padova, XXIV, p. 208, 1874. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 158, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 20, 1941).

Hab. II, III. On *Carpesium abrotanoides* L. (*Yabutabako*). Amami-oshima Isl.: Tatsugo-mura (Dec. 27, 1953, Y. N., no. 1175).

II, III. On *Carpesium cernuum* L. (*Ko-yabutabako*). Okinawa Isl.: Takamine-mura (March 19, 1940, Y. T., no. 406); Haneji-mura (Nov. 14, 1953, S. S., no. 1205).

27. **Coleosporium Clematidis** Barclay in Jour. Asiatic Soc. Bengal, LIX, pt. 2, p. 89, 1890. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 159, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 20, 1941).

Hab. II, III. On *Clematis grata* Wall. (*Ke-botandzuru*). Okinawa Isl.: Onna-mura (Jan. 12, 1940, H. f., no. 62); Nago-machi (Jan. 16, 1940, H. f., no. 107; April 19, 1940, Y. T., no. 475); Mt. Taniu-dake (June 12, 1953, H. f. & S. S., no. 962); Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 251); Motobu-machi (May 29, 1953, H. f. & S. S.,

no. 961); Haneji-mura (Jan. 15, 1940, H. f., nos. 276, 294 & 295); Mawashi-mura (Jan. 22, 1940, H. f., no. 329; May 3, 1953, H. f. & S. S., no. 963); Shuri-shi (Jan. 21, 1940, H. f., no. 7); Takamine-mura (Jan. 21, 1940, H. f., no. 182; May 15, 1953, H. f. & S. S., no. 964); Itoman-machi (Jan. 21, 1940, H. f., no. 322). Kume-jima Isl.: Gushikawa-son (March 7, 1954, S. S., no. 1222).

28. **Coleosporium Clerodendri** Dietel in Bot. Jahrb. XXVIII, p. 566, 1899. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 159, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 20, 1941).

Hab. II, III. On *Clerodendron fragrans* Vent. (*Yaезaki-kusagi*). Okinawa Isl.: Takamine-mura (March 19, 1940, Y. T., no. 404); Shuri-shi (Nov. 27, 1898, Naoharu Hiratsuka, no. 1117; Feb. 19 & March 25, 1940, Y. T., nos. 350 & 418).

II, III. On *Clerodendron trichotomum* Thunb. (*Kusagi*). Okinawa Isl.: Shuri-shi (Jan. 6, 1899, Naoharu Hiratsuka, no. 1120; Jan. 10 & 11, 1940, H. f., nos. 11 & 42; Feb. 26, 1954, S. S., no. 1203); Kanegusuku-mura (Jan. 21, 1940, H. f., no. 198); Haneji-mura (Jan. 13, 1940, H. f., no. 89; Jan. 15, 1940, H. f., no. 291).

II, III. On *Clerodendron* sp. Okinawa Isl.: Mawashi-mura (May 3, 1953, H. f. & S. S., no. 959).

II, III. On *Clerodendron* sp. Kume-jima Isl.: Nakazato-son (March 5, 1954, S. S., no. 1217).

II, III. On *Clerodendron* sp. Okinawa Isl.: Haneji-mura (May 9, 1953, H. f. & S. S., no. 958).

29. **Coleosporium Evodiae** Dietel in Ann. Myc. VII, p. 355, 1909. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 373, 1940; Mem. Facul. Agric. Tokyo Univ. Education, I, p. 27, 1952).

Hab. II, III. On *Evodia glauca* Miq. (*Evodia meliaefolia* Benth.) (*Shima-kuroki*, *Hama-sendan*). Amami-oshima Isl.: Mikata-mura (Oct. 20, 1936, T. T., no. 1052); Tatsugo-mura (Dec. 27, 1953, Y. N., no. 1193). Kume-jima Isl.: Gushikawa-son (March 5, 1954, S. S., no. 1224).

30. **Coleosporium Paederiae** Dietel in Ann. Myc. VII, p. 355, 1909. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 159, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 21, 1941).

Hab. II, (III). On *Paederia chinensis* Hance. (*Yaito-bana*). Okinawa Isl.: Haneji-mura (Jan. 15, 1940, H. f., no. 274b).

31. **Coleosporium Perillae** Sydow in Hedwigia, XXXVIII, p. (141), 1899. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 21, 1941).

Hab. II, III. On *Perilla frutescens* Brit. var. *crispa* Decne. form. *purpurea* Mak. (*Shiso*) (*cult.*). Okinawa Isl.: Shuri-shi (Oct., 1898, Naoharu Hiratsuka, no. 1125; May 20, 1953, Ch. Gushigami, no. 954).

32. *Coleosporium Xanthoxyli* Dietel et Sydow in Dietel in Hedwigia, XXXVII, p. 217, 1898.

Hab. II, III. On *Fagara ailanthoides* Engl. (*Karasu-zansho*). Amami-oshima Isl.: Kasari-mura (Dec. 23, 1953, Y. N., no. 1206).

PUCCINIACEAE

Skierka Raciborski, 1900

33. *Skierka Agallocha* Raciborski in Bull. Acad. Sci. Cracovie, Cl. sci. math. et nat. (1909), p. 275, 1909. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 373 & text-figs. 1 (a, b), 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 21, 1941; Hiratsuka, f. & Taira in Bot. & Zool. VIII, p. 1642, 1940; Ito, Myc. Fl. Jap. II, no. 3, p. 3).

Hab. II, III. On *Excoecaria Agallocha* L. (*Okinawa-jinko*). Okinawa Isl.: Nawa-shi (March 15, 1940, Y. T., no. 398).

Didymopsorella Thirumalachar, 1950

34. *Didymopsorella lemanensis* (Doidge) Hiratsuka, f. nov. comb.

Syn. *Aecidium Toddaliae* Petch in Ann. Roy. Bot. Gard. Peradeniya, IV, p. 303, 1909.

Uredo Toddaliae Petch ex Sydow, Fung. exot. exsicc. no. 69, 1913.

Puccinia lemanensis Doidge, S. African Rust Fungi, p. 95, 202 & text-fig. (p. 95), 1926.

Ctenoderma Toddaliae Sydow in Ann. Myc. XVII, p. 103, 1919; Mains in Mycologia, XXXI, p. 188, 1939. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 21, 1941).

Skierka Toddaliae Hiratsuka, f. ex Ito & Murayama in Transact. Sapporo Nat. Hist. Soc. XVII, p. 165, 1943. (Ito, Myc. Fl. Jap. II, no. 3, p. 3).

Didymopsorella Toddaliae Thirumalachar in Sci. & Cult. XVI, p. 211, 1950; Sydowia, V, p. 28, 1951.

Gymopuccinia pulneyensis T. S. Ramakrishnan in Transact. Brit. Myc. Soc. XXXIV, p. 141 & text-figs. 1~4, pl. IV, figs. 1 & 2, 1951.

Hab. 0, II, (III). On *Toddalia asiatica* Lam. (*Sarukake-mikan*). Okinawa Isl.: Mt. Yoza-dake (Takamine-mura) (March 19, 1940, Y.

T., no. 401); Motobu-machi (May 29, 1953, H. f. & S. S., nos. 946 & 947).

Kuehneola Magnus, 1898

35. **Kuehneola Callicarpae** Sydow apud Sydow & Petrak in Ann. Myc. XXVI, p. 420, 1928. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 159, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 21, 1941).

Hab. 0, II, III. On *Callicarpa japonica* Thunb. var. *luxurians* Rehd. (*O-murasakishikibu*). Amami-oshima Isl.: Kasari-mura (Dec. 25, 1953, Y. N., no. 1179). Okinawa Isl.: Mt. Onna-dake (Jan. 12, 1940, H. f., nos. 68, 78 & 82); Nago-machi (Jan. 14, 1940, H. f., nos. 236 & 239; Nov. 27, 1953, S. S., no. 1204); Haneji-mura (Jan. 15, 1940, H. f., no. 270); Nawa-shi (Jan. 19, 1940, H. f., no. 140; March 15, 1940, Y. T., no. 400); Shuri-shi (Jan. 11, 1940, H. f., no. 41); Kanegusuku-mura (Jan. 21, 1940, H. f., no. 197); Mt. Kushi-dake (June 5, 1953, H. f. & S. S., no. 1001); Kunigami-son (Oct. 14, 1953, S. S., no. 1141); Mt. Taniu-dake (June 12, 1953, H. f. & S. S., nos. 1000 & 1142). Kume-jima Isl.: Nakazato-son (March 5, 1954, S. S., no. 1219). Ishigaki Isl. (Aug. 6, 1953, Y. N., no. 1013).

36. **Kuehneola japonica** (Diet.) Dietel in Ann. Myc. X, p. 205, 1912.

Syn. *Phragmidium japonicum* Dietel in Bot. Jahrb. XXVII, p. 567 & pl. VII, fig. 8, 1899.

Kuehneola Rosae Sawada in Transact. Sapporo Nat. Hist. Soc. VII, p. 40 & text-figs. 1~3, 1918.

Hab. III. On *Rosa chinensis* Jacq. subsp. *indica* Koehne (*Koshinbara*) (*cult.*). Okinawa Isl.: Shuri-shi (June 4, 1953, H. f., no. 1040).

III. On *Rosa Wichurariana* Crep. var. *ampullicarpa* Honda (*Tokkuri-ibara*). Amami-oshima Isl.: Kasari-mura (Jan. 2, 1954, Y. N., no. 1186).

Hamaspora Körnicke, 1877

37. **Hamaspora acutissima** Sydow, Monogr. Ured. III, p. 80 & pl. IV, fig. 14, 1912. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 22, 1941).

Hab. (II), III. On *Rubus nesiotis* Focke (*Kuwanoha-ichigo*). Okinawa Isl.: Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 234).

38. **Hamaspora okinawensis** Hiratsuka, f. nov. spec.

Soris teleutosporiferis hypophyllis, caespitosis, filiformibus, usque 1 cm longis, flavidis; teleutosporis cylindraceutis, 2~3-septatis, plerumque 2-septatis, ad septa non vel leniter constrictis, cellula superiore

longissima acutata, membrana ibique incrassata et quasi apiculum proprium hyalinum acutum, 10~21 μ longum formante, levibus, pallide flavidis, 108~144 \times 18~22 μ , quaque cellula poro germinationis unico praedita; episporio hyalino, 1~1.5 μ crasso; pedicello longissimo, persistenti, 9~15 μ lato, hyalino.

Hab. III. On *Rubus utchinensis* Koidz. (*Hozaki-ichigo*). Okinawa Isl.: Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 228, *type!*).

This species is closely resembles *Hamaspora Hashiokai* Hiratsuka, f., but, it differs from the latter species by the longer teleutospores with apex tapering to a fine sharp point, thickened up to 21 μ .

39. **Hamaspora Rubi-Sieboldii** (Kawagoe) Dietel in Ann. Myc. XX, p. 293, 1922. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 159, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 22, 1941). (Plate I, fig. 1)

Syn. *Phragmidium Rubi-Sieboldii* Kawagoe in Bull. Kagoshima Imp. Coll. Agric. & Forestr. I, p. 201 & 1 pl., 1915 (nom. seminud.); Saccardo, Syll. Fung. XXIII, p. 825.

Hab. II, III. On *Rubus Sieboldii* Bl. (*Horoku-ichigo*). Amami-oshima Isl.: Kasari-mura (Dec. 23, 1953, Y. N., no. 1184). Okinawa Isl.: Mt. Onna-dake (Jan. 12, 1940, H. f., nos. 76 & 77); Mt. Katsuu-dake (Jan. 14, 1940, H. f., nos. 214 & 229); Takamine-mura (March 19, 1940, Y. T., no. 403); Motobu-machi (April 15, 1940, Y. T., no. 456; May 29, 1953, H. f. & S. S., nos. 1008 & 1009); Mt. Benoki-yama (April 11, 1940, Y. T., no. 434); Mt. Taniu-dake (June 12, 1953, H. f. & S. S., no. 1007); Nakijin-mura (April 15, 1940, Y. T., no. 463).

Maravalia Arthur, 1922

40. **Maravalia achroa** (Syd.) Arthur et Cummins in Philippine Jour. Sci. LXI, p. 458 & pl. II, fig. 5, 1936.

Syn. *Uromyces achrous* Sydow in Ann. Myc. V, p. 491, 1907.

Hab. II, III. On *Dalbergia sisso* Roxb. (*Shisso-no-ki*) (*cult.*). Okinawa Isl.: Kawashi-mura (March 25, 1940, Y. T., no. 1056).

Poliotelium Sydow, 1922

41. **Poliotelium hyalospora** (Sawada) Mains in Bull. Torrey Bot. Club, LXVI, p. 175, 1939. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 160, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 22, 1941).

Syn. *Uromyces hyalosporus* Sawada in Bot. Mag. Tokyo, XXVII, p. 19 & text-figs. 1~6, 1913.

Maravalia hyalospora Dietel in Engler-Prantl, Natürl. Pflanzenfam. II. Aufl. VI, p. 66, 1928. (Hiratsuka, f. in Jour. Jap. Bot.

XIII, p. 251, 1937).

Hab. 0, II, III. On *Acacia confusa* Merr. (*Soshijyu*). Okinawa Isl.: Onna-mura (Jan. 12, 1940, H. f., no. 66); Nago-machi (Jan. 16, 1940, H. f., no. 101; May 9, 1953, H. f. & S. S., no. 833); Haneji-mura (Jan. 13, 1940, H. f., nos. 100, 207 & 286; June 12, 1953, H. f. & S. S., no. 834); Shuri-shi (Jan. 5, 1899, Naoharu Hiratsuka, no. 1057; Jan. 10, 1940, H. f., no. 6); Mawashi-mura (Jan. 11, 1940, H. f., no. 57); Oroku-mura (Jan. 19, 1940, H. f., no. 118); Motobu-machi (May 29, 1953, H. f. & S. S., no. 835); Yabu-mura (May 8, 1953, H. f. & S. S., no. 832). Miyako Isl.: Shimochi-cho (Aug. 2, 1953, S. S., no. 1102). Ishigaki Isl. (Aug. 5, 1953, Y. N., no. 1101).

Phragmidium Link, 1824

42. **Phragmidium griseum** Dietel in Bot. Jahrb. XXXII, p. 49, 1902. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 23, 1941).

Hab. II, (III). On *Rubus rosaefolius* Sm. var. *Maximowiczii* Focke (*Ryukyu-bara-ichigo*). Okinawa Isl.: Haneji-mura (Jan. 13, 1940, H. f., nos. 99 & 211); Nago-machi (April 14, 1940, Y. T., no. 453; May 8, 1953, H. f. & S. S., nos. 1157 & 1158).

43. **Phragmidium pauciloculare** (Diet.) Sydow, Monogr. Ured. III, p. 138 & pl. VI, fig. 60, 1912. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 161, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 23, 1941).

Syn. *Phragmidium Barnardi* Plowright et Winter var. *pauciloculare* Dietel in Bot. Jahrb. XXXII, p. 49, 1902.

Hab. II, III. On *Rubus parvifolius* L. var. *triphyllus* Nakai (*Nawashiro-ichigo*). Okinawa Isl.: Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 252); Haneji-mura (Jan. 15, 1940, H. f., no. 296); Shuri-shi (Feb. 1, 1940, Y. T., no. 343).

Hemileia Berkeley et Broome, 1869

44. **Hemileia Gardeniae-floridae** Sawada in Transact. Nat. Hist. Soc. Formosa, XXI, p. 234, 1931 (nom. seminud.); Hiratsuka, f. & Yoshinaga in Mem. Tottori Agric. Coll. III, p. 274, 1935. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 373, 1940; Mem. Facul. Agric. Tokyo Univ. Education, I, p. 33, 1952).

Hab. II, (III). On *Gardenia jasminoides* Ell. var. *grandiflora* Nakai (*Kuchinashi*). Amami-oshima Isl.: Tatsugo-mura (Oct. 15, 1936, T. T., no. 875). Okinawa Isl.: Mt. Yonaha-dake (May 30, 1953, H. f. & S. S., no. 852); Haneji-mura (Feb. 20, 1954, S. S., no. 1202).

Gymnosporangium Hedwig, f., 1805

45. **Gymnosporangium Haraeanum** Sydow in Ann. Myc. X, p. 405, 1912.

Hab. III. On *Juniperus chinensis* L. (*Byakushin*) (*cult.*). Okinawa Isl.: Shuri-shi (April 26, 1953, H. f., no. 851).

Xenostele Sydow, 1920

46. **Xenostele Litseae** (Pat.) Sydow in Ann. Myc. XVIII, p. 178, 1920.

Syn. *Aecidium Litseae* Patouillard in Bull. Herb. Boiss. no. 1, p. 302, 1893.

Hab. III. On *Cinnamomum japonicum* Sieb. (*Yabu-nikkei*). Okinawa Isl.: Mt. Taniu-dake (June 12, 1953, H. f. & S. S., no. 948).

Pileolaria Castagne, 1842

47. **Pileolaria Shiraiana** (Diet. et Syd.) Ito in Jour. Coll. Agric. Hokkaido Imp. Univ. XI, p. 273 & pl. IX, fig. 13, 1922. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 160, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 22, 1941). (Plate I, fig. 2)

Syn. *Uromyces Shiraianus* Dietel et Sydow apud Dietel in Hedwigia, XXXVII, p. 213, 1898.

Hab. II, III. On *Rhus succedanea* L. (*Haze-no-ki*). Amami-oshima Isl.: Tatsugo-mura (Dec. 27, 1953, Y. N., no. 1208). Okinawa Isl.: Onna-mura (Jan. 12, 1940, H. f., no. 70); Mt. Onna-dake (Jan. 12, 1940, H. f., no. 72); Mt. Nago-dake (Nov. 27, 1953, S. S., no. 1195); Haneji-mura (Jan. 13, 1940, H. f., no. 87); Nawa-shi (Jan. 19, 1940, H. f., no. 129); Shuri-shi (Jan. 11, 1940, H. f., no. 40); Mt. Benoki-yama (April 11, 1940, Y. T., no. 437); Mt. Kushi-dake (June 5, 1953, H. f. & S. S., nos. 942 & 945); Mt. Taniu-dake (June 12, 1953, H. f. & S. S., no. 943); Mt. Yonaha-dake (May 30, 1953, H. f. & S. S., no. 944).

Ravenelia Berkeley, 1853

48. **Ravenelia Hobsoni** Cooke in Jour. Roy. Micr. Soc. III, p. 386 & pl. XI, fig. 4, 1880. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 160, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 22, 1941).

Syn. *Haploravenelia Hobsoni* Ito apud Ito & Murayama in Transact. Sapporo Nat. Hist. Soc. XVII, p. 166, 1943.

Hab. II, III. On *Pongamia pinnata* Merr. (*Pongamia glabra* Vent.) (*Kuro-yona*). Okinawa Isl.: Nawa-shi (Jan. 19, 1940, H. f.,

nos. 132 & 133); Kanegusuku-mura (Jan. 21, 1940, H. f., no. 301). Miyako Isl.: Miyaguni-aza, Ueno-mura (Aug. 3, 1953, S. S., no. 1012).

49. **Ravenelia tephrosiicola** Hiratsuka, f. in Jour. Jap. Bot. XIII, p. 249, 1937. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 161, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 23, 1941).

Syn. *Haploravenelia tephrosiicola* Ito apud Ito & Murayama in Transact. Sapporo Nat. Hist. Soc. XVII, p. 166, 1943.

Hab. II, III. On *Tephrosia candida* DC. (*Nanban-kusafuji*) (*cult.*). Okinawa Isl.: Haneji-mura (Jan. 13, 1940, H. f., nos. 212 & 213).

Uromyces (Link) Unger, 1833

50. **Uromyces Alopecuri** Seymour in Proc. Boston Soc. Nat. Hist. XXIV, p. 186, 1889.

Hab. II, III. On *Alopecurus geniculatus* L. (*Alopecurus fulvus* L.) (*Suzumenoteppo*). Amami-oshima Isl.: Nase-shi (Sept., 1935, T. T., no. 1105). Okinawa Isl.: Nago-machi (May 9, 1953, H. f. & S. S., no. 849; May 23, 1953, M. Nagayama, no. 850).

51. **Uromyces appendiculatus** (Pers.) Unger, Einfl. d. Bodens, p. 216, 1836.

Syn. *Uredo appendiculata* Persoon, Syn. Meth. Fung. p. 221 & 222, 1801.

Hypodermium (*Uromyces*) *appendiculatus* Link in Mag. Naturf. Fr. Berlin, VII, p. 28, 1815.

Uromyces appendiculatus Link (Ito in Jour. Coll. Agric. Hokkaido Imp. Univ. XI, p. 230, 1922, p.p.; Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 23, 1941, p.p.).

Hab. (0, I), II, III. On *Phaseolus vulgaris* L. (*Ingen-mame*) (*cult.*). Okinawa Isl.: Haneji-mura (Aug. 9, 1904, T. Miyagi, no. 1140); Shuri-shi (April 25, 1953, H. f., no. 932).

52. **Uromyces azukicola** S. Hirata in Ann. Phytopath. Soc. Japan, XVI, p. 18 & text-fig. 3, 1952.

Syn. *Uromyces appendiculatus* (non Link) (Ito in Jour. Coll. Agric. Hokkaido Imp. Univ. XI, p. 230, 1922, p.p.; Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 23, 1941, p.p.).

Hab. (0, I), II, III. On *Phaseolus angularis* Wight. (*Azuki*) (*cult.*). Miyako Isl.: Taira-shi (Aug. 4, 1953, S. S., no. 1100).

(0, I), II, III. On *Phaseolus minimus* Roxb. (*Koba-no-tsuru-azuki*). Okinawa Isl.: Mawashi-mura (Feb. 11, 1940, Y. T., no. 344); Kanegusuku-mura (Jan. 21, 1940, H. f., no. 311).

53. **Uromyces Baeumlerianus** Bubák in Hedwigia, XLII, p. 363, 1908; Klebahn in Kryptogamenfl. Mark Brandenb. Va, p. 236, 1913; Fragoso, Fl. Ibér. Ured. II, p. 78 & fig. 37, 1925; Sydow, Monogr. Ured. II, p. 117. (Plate II, fig. 2)

Hab. II, III. On *Melilotus alba* Desv. (*Kogome-hagi*) (*Sweet clover*) (*cult.*). Okinawa Isl.: Shuri-shi (June 21, 1953, H. f., no. 847; June 25, 1953, H. f. & S. S., no. 1029). The present species is new to Japanese Archipelago.

54. **Uromyces Commelinae** Cooke in Transact. Roy. Soc. Edinb. XXXI, p. 342, 1888. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 161, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 23, 1941).

Hab. II, (III). On *Commelina auriculata* Bl. (*Horai-tsuyukusa*). Okinawa Isl.: Motobu-machi (May 29, 1953, H. f. & S. S., no. 848).

II, (III). On *Commelina communis* L. (*Tsuyu-kusa*). Okinawa Isl.: Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 233).

II, (III). On *Commelina nudiflora* L. (*Shima-tsuyukusa*). Okinawa Isl.: Oroku-mura (Jan. 19, 1940, H. f., no. 125); Nago-machi (Jan. 14, 1940, H. f., no. 220); Osato-mura (Jan. 20, 1940, H. f., no. 164).

55. **Uromyces coronatus** Miyabe et Nishida ex Dietel in Bot. Centralbl. CV, p. 495, 1905; Ito in Jour. Coll. Agric. Tohoku Imp. Univ. (Sapporo), III, p. 183, 1909. (Hiratsuka, f. in Mem. Facul. Agric. Tokyo Univ. Education, I, p. 45, 1952).

Hab. II, III. On *Zizania latifolia* Turcz. (*Zizania caduciflora* Hand.-Mazz.) (*Makomo*). Amami-oshima Isl.: Nase-shi (Sept., 1935, T. T., no. 1006); Tatsugo-mura (Dec. 29, 1953, Y. N., no. 1187). Okinawa Isl.: Yabu-mura (May 8, 1953, H. f. & S. S., no. 936). Ishigaki Isl. (Aug. 5, 1953, Y. N., no. 1103).

56. **Uromyces Dianthi** Niessl in Verh. Naturf. Verf. Brünn, X, p. 162, 1872.

Syn. *Uromyces caryophyllinus* Winter in Pilze Deutschl. I, p. 149, 1881.

Hab. II, (III). On *Dianthus chinensis* L. (*Kara-nadeshiko*, *Sekichiku*) (*cult.*). Okinawa Isl.: Shuri-shi (May 3, 1953, H. f., no. 1041).

57. **Uromyces durus** Dietel in Ann. Myc. V, p. 70, 1907.

Hab. II, III. On *Allium nipponicum* Franch. et Sav. (*Nobiru*). Okinawa Isl.: Takamine-mura (May 15, 1953, H. f. & S. S., nos. 929 & 930).

58. **Uromyces Ervi** Westendorp in Bull. Acad. Roy. Sci. de Belg. XXI, pt. 2, p. 246 & fig. 3, 1854.

Hab. 0, I, II, III. On *Vicia hirsuta* Koch. (*Suzume-no-endo*).

Okinawa Isl.: Gushikawa-mura (May 1, 1953, H. f. & S. S., nos. 919 & 920); Shuri-shi (April 25, 1953, H. f., nos. 911 & 915; May 2, 1953, H. f., no. 916); Shikina, Mawashi-mura (May 3, 1953, H. f., no. 917); Haeburu-mura (May 16, 1953, H. f. & S. S., no. 918).

0, I, II, III. On *Vicia sativa* L. (*Karasu-no-endo*). Okinawa Isl.: Shuri-shi (April 25, 1953, H. f., no. 912); Shikina, Mawashi-mura (May 3, 1953, H. f., no. 913).

0, I, II, III. On *Vicia tetrasperma* Moench. (*Kasumagusa*). Okinawa Isl.: Shuri-shi (May 2, 1953, H. f., nos. 921, 922 & 923); Motobu-machi (May 29, 1953, H. f. & S. S., no. 924).

59. **Uromyces Fabae** De Bary in Ann. Sci. Nat. (IV), XX, p. 80, 1863; De Bary ex Cooke in Grevillea, VII, p. 135, 1879. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 161, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 23, 1941).

Hab. (0, I), II, III. On *Vicia Faba* L. (*Sora-mame*) (*cult.*). Okinawa Isl.: Yontan-mura (March 8, 1940, Y. T., no. 382); Ginowan-mura (Feb. 27, 1940, Y. T., no. 367); Takamine-mura (March 2, 1940, Y. T., no. 376); Goeku-mura (May 1, 1953, H. f. & S. S., no. 927); Gushikawa-mura (May 1, 1953, H. f. & S. S., no. 928). Kume-jima Isl.: Nakazato-son (March 5, 1954, S. S., no. 1229).

60. **Uromyces Galii** Dietel in Ann. Myc. V, p. 71, 1907.

Hab. (0, I), III. On *Galium spurium* L. var. *echinospermum* Hyek. (*Galium Aparine* Auct.) (*Yaemugura*). Okinawa Isl.: Mawashi-mura (April 30, 1953, M. Nagayama, no. 838); Shuri-shi (May 2, 1953, H. f., no. 837); Shikina, Mawashi-mura (May 3, 1953, H. f., no. 839).

61. **Uromyces Itoanus** Hiratsuka, f. apud Hiratsuka, f. & Tobinaga in Ann. Phytopath. Soc. Japan, IV, p. 161, 1935.

Hab. (0, I), II, III. On *Kummerowia striata* Schindl. (*Microlespedeza striata* Mak.) (*Yahadzuso*). Okinawa Isl.: Nago-machi (May 8, 1953, H. f. & S. S., no. 934).

62. **Uromyces Lespedezae-procumbentis** (Schw.) Curtis in Geol. Survey N. Car. III, p. 123, 1867. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 161, 1940; Transact. Tottori Soc. Agric. Sci. VII, p. 75, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941).

Syn. *Puccinia Lespedezae-procumbentis* Schweinitz in Schr. Nat. Ges. I, p. 73, 1822.

Hab. (0, I), II, III. On *Lespedeza cuneata* G. Don. (*Medo-hagi*). Amami-oshima Isl.: Kasari-mura (Dec. 24, 1953, Y. N., no. 1290). Okinawa Isl.: Kanegusuku-mura (Jan. 21, 1940, H. f., no. 308);

Mt. Taniu-dake (June 12, 1953, H. f. & S. S., no. 931); Haneji-mura (Nov. 14, 1953, S. S., no. 1196).

63. **Uromyces linearis** Berkeley et Broome in Jour. Linn. Soc. XIV, p. 92, 1875. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 161, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941). (Plate II, fig. 1)

Hab. II, III. On *Panicum repens* L. (*Hai-kibi*). Okinawa Isl.: Onna-mura (Jan. 12, 1940, H. f., nos. 64 & 81); Haneji-mura (Jan. 15, 1940, H. f., nos. 208, 278, 281, 289 & 297); Mt. Katsuu-dake (Jan. 14, 1940, H. f., no. 261); Shuri-shi (Jan. 10, 1940, H. f., no. 18; April 25 & May 2, 1953, H. f., nos. 810 & 826); Mawashi-mura (May 22 & 23, 1953, H. f., nos. 831 & 809); Nawa-shi (Jan. 11, 1940, H. f., no. 32; Jan. 19, 1940, H. f., nos. 137 & 142); Osato-mura (Jan. 20, 1940, H. f., nos. 170 & 171); Itoman-machi (Jan. 21, 1940, H. f., nos. 307 & 321); Haebaru-mura (May 16, 1953, H. f. & S. S., no. 811); Ginoza-mura (June 5, 1953, H. f. & S. S., no. 827); Haneji-mura (May 8 & June 12, 1953, H. f. & S. S., nos. 829 & 830); Kunigami-son (May 29, 1953, H. f. & S. S., nos. 824 & 825); Takamine-mura (May 15, 1953, H. f. & S. S., no. 823); Miwa-mura (May 15, 1953, H. f., no. 821); Gushikawa-mura (May 1, 1953, H. f. & S. S., no. 808). Miyako Isl.: Shimochi-cho (Aug. 2, 1953, S. S., no. 1032).

64. **Uromyces Mucunae** Rabenhorst in Hedwigia, XVII, p. 62, 1878. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 162, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941).

Hab. II, III. On *Mucuna Hasjoo* Rock (*Mucuna capitata* Wight. et Arn.) (*Hassho-mame*) (*cult.*). Okinawa Isl.: Oroku-mura (Jan. 21, 1940, H. Okamoto, no. 323).

65. **Uromyces proeminens** Léveillé in Ann. Sci. Nat. (III), VIII, p. 371 & 375, 1847.

Hab. 0, I, II, III. On *Chamaesyce Makinoi* Hara (*Koba-no-nishi-kiso*). Okinawa Isl.: Nawa-shi (April 23, 1953, H. f., nos. 840 & 841); Shuri-shi (May 5, 1953, H. f., no. 842); Nakijin-mura (June 18, 1953, H. f. & S. S., no. 1031).

Chamaesyce Makinoi is a new host plant for the present species.

66. **Uromyces pyriformis** Cooke ex Peck in Rept. N. Y. State Mus. XXIX, p. 69, 1878. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941; Mem. Facul. Agric. Tokyo Univ. Education, I, p. 51, 1952).

Hab. II, (III). On *Acorus asiaticus* Nakai (*Acorus Calamus* L. var. *angustatus* Bess.) (*Shobu*). Amami-oshima Isl.: Nase-shi (April

3, 1935, T. T., no. 1120). Okinawa Isl.: "Shimajiri" (March 29, 1902, T. Kuroiwa, no. 1119); Nawa-shi (Feb. 25, 1940, Y. T., no. 365); Takamine-mura (March 19, 1940, Y. T., no. 407); Mawashi-mura (May 23, 1953, H. f. & S. S., no. 935); Shuri-shi (June 9, 1953, S. S., no. 1030); Yontan-mura (Yontanzan-mura) (March 8, 1940, Y. T., no. 378).

67. *Uromyces Setariae-italicae* Yoshino in Bot. Mag. Tokyo, XX, p. 247, 1906. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 162, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941).

Hab. II, (III). On *Setaria lutescens* Hubbard var. *longispica* Honda (*Nagabo-no-kin-enokoro*). Okinawa Isl.: Haneji-mura (Jan. 13, 1940, H. f., no. 202).

II, (III). On *Setaria geniculata* (Lam.) Beauv. (*Kotsubu-kin-enokoro*). Okinawa Isl.: Takamine-mura (May 15, 1953, H. f. & S. S., no. 926); Mawashi-mura (Jan. 22, 1940, H. f., no. 338); Yonabaru-machi (Jan. 20, 1940, H. f., no. 159); Kanegusuku-mura (Jan. 21, 1940, H. f., no. 316).

II, (III). On *Setaria italica* (L.) Beauv. (*Awa*) (*cult.*). Miyako Isl.: Taira-shi (May 14, 1952, M. Nagayama, no. 925).

II, (III). On *Setaria viridis* Beauv. var. *pachystachys* Mak. et Nem. (*Hama-enokoro*). Okinawa Isl.: Nago-machi (April 19, 1940, Y. T., no. 477); Haneji-mura (Jan. 15, 1940, H. f., no. 285).

68. *Uromyces striatus* Schröter in Abhandl. Schles. Ges. vaterl. Kult. XLVIII, p. 11, 1872. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 162, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941).

Hab. II, III. On *Medicago lupulina* L. (*Kometsubu-umakoyashi*). Okinawa Isl.: Shuri-shi (March 12, 1940, Y. T., no. 386; April 25 & May 25, 1953, H. f., nos. 965 & 966); Nawa-shi (Feb. 22, 1954, S. S., no. 1221).

69. *Uromyces Tairae* Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 374 & text-fig. 1 (c & d), 1940. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941).

Hab. II, III. On *Tournefortia argentea* L. (*Messerschmidia argentea* Johnst.) (*Monpa-no-ki*). Okinawa Isl.: Mabuni-mura (March 2, 1940, Y. T., no. 372, *type!*).

70. *Uromyces tenuicutis* Mc Alpine, Rusts of Australia, p. 87 & pl. XVI, fig. 133, 1906. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 162, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 24, 1941).

Hab. II, III. On *Sporobolus indicus* R. Br. (*Nezumino-o*). Amami-oshima Isl.: Kasari-mura (Dec. 25, 1953, Y. N., no. 1182).

Okinawa Isl.: Nawa-shi (Jan. 18 & 19, 1940, H. f., nos. 115 & 138); Shuri-shi (June 11, 1953, H. f., no. 1133).

71. **Uromyces Vignae** Barclay in Jour. Asiatic Soc. Bengal, LX, p. 211, 1891. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 162, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 25, 1941).

Hab. (0, I), II, III. On *Dolichos Lablab* L. (*Fuji-mame*) (*cult.*). Okinawa Isl.: Oroku-mura (Jan. 19, 1940, H. f., nos. 120 & 121).

(0, I), II, III. On *Vigna sinensis* Savi (*Sasage*) (*cult.*). Amami-oshima Isl.: Nase-shi (Oct., 1935, T. T., no. 1104). Okinawa Isl.: Mawashi-mura (July 5, 1951, M. Nagayama, no. 933).

72. **Uromyces Wedeliae** Hennings in Hedwigia, XLIII, p. 150, 1904. (Hiratsuka, f. in Mem. Facul. Agric. Tokyo Univ. Education, I, p. 53, 1952).

Hab. II, III. On *Wedelia biflora* DC. (*Shima-hamaguruma*). Amami-oshima Isl.: Uken-mura (Dec. 20, 1936, T. T., no. 1094).

II, III. On *Wedelia prostrata* Hemsl. (*Hamaguruma*). Kume-jima Isl.: Gushikawa-son (March 7, 1954, S. S., no. 1212).

Puccinia Persoon, 1801

73. **Puccinia Absinthii** (Hedw. f.) De Candolle, Fl. franç. VI, p. 56, 1815. (Hiratsuka, f. in Bot. Mag. Tokyo, LIV, p. 375, 1940; Transact. Sapporo Nat. Hist. Soc. XVII, p. 25, 1941).

Syn. *Uredo (Puccinia) Absinthii* Hedwig, f. ex Poiret in Lam., Encycl. Bot. VIII, p. 248, 1808.

Hab. II, III. On *Artemisia dubia* Wall. (*Yomogi*). Okinawa Isl.: Haneji-mura (April 8, 1940, Y. T., no. 424); Shuri-shi (May 4, 1953, H. f., no. 978); Chinen-mura (Jan. 20, 1940, H. f., no. 144); Mawashi-mura (May 3, 1953, H. f. & S. S., no. 979).

II, III. On *Artemisia japonica* Thunb. (*Otoko-yomogi*). Okinawa Isl.: Haneji-mura (Jan. 15, 1940, H. f., no. 279).

74. **Puccinia Agropyri** Ellis et Everhart in Jour. Myc. VII, p. 131, 1892.

Syn. *Puccinia rubigo-vera* Winter in Pilze Deutschl. I, p. 217, 1881. (Hiratsuka, f. in Transact. Sapporo Nat. Hist. Soc. XVII, p. 31, 1941).

Hab. II, III. On *Agropyron Kamoji* Ohwi (*Agropyron tsukushiense* Ohwi var. *transiens* Ohwi, *A. semicostatum* Auct.) (*Kamoji-gusa*). Okinawa Isl.: Shuri-shi (March 12, 1940, Y. T., no. 385; May 20, 1953, H. f., no. 1132); Shikina, Mawashi-mura (May 3, 1953, H. f.,

nos. 1129~31 & 1135).

75. **Puccinia Agropyri-ciliaris** Tai et Wei in *Sinensia*, IV, p. 110 & fig. 41, 1933.

Hab. II, (III). On *Agropyron ciliare* Franch. (*Ao-kamojigusa*). Okinawa Isl.: Shuri-shi (May 26, 1953, H. f., no. 1143).

76. **Puccinia Allii** (DC.) Rudolphi in *Linnaea*, I, p. 392, 1892.

Syn. *Xyloma?* *Allii* De Candolle, *Fl. franç.* V, p. 156, 1815.

Hab. (0, I), II, III. On *Allium fistulosum* L. (*Negi*) (*cult.*). Okinawa Isl.: Haebaru-mura (April 10, 1953, M. Nagayama, no. 902); Nago-machi (May 23, 1953, M. Nagayama, no. 898).

77. **Puccinia Angelicae** (Schum.) Fuckel in *Jahrb. Nass. Ver. Nat.* XXIII~XXIV, p. 52, 1870.

Syn. *Uredo Angelicae* Schumacher, *Enum. Pl. Saell.* II, p. 233, 1802.

Hab. II, III. On *Peucedanum japonicum* Thunb. (*Botan-ninjin*, *Botan-bofu*). Okinawa Isl.: Mawashi-mura (Jan. 22, 1940, Y. T., no. 324). Senkaku-Retto (Aug. 2, 1953, Y. N., no. 1096).

78. **Puccinia Arthraxonis-ciliaris** Cummins in *Uredineana*, IV, p. 16 & fig. 9, 1953.

Syn. *Uredo Arthraxonis-ciliaris* Hennings in *Hedwigia*, XLVIII, p. 251, 1908. (*Hiratsuka*, f. in *Bot. Mag. Tokyo*, LIV, p. 377, 1940; *Transact. Sapporo Nat. Hist. Soc.* XVII, p. 33, 1941).

Hab. II, (III). On *Arthraxon hispidus* Mak. (*Kobunagusa*). Okinawa Isl.: Kanegusuku-mura (Jan. 21, 1940, H. f., no. 309); Osatomura (Jan. 20, 1940, H. f., no. 165); Takamine-mura (Jan. 21, 1940, H. f., no. 192; May 15, 1953, H. f. & S. S., no. 1155); Shuri-shi (March 25, 1940, Y. T., no. 415; April 30 & May 26, 1953, H. f., nos. 1088 & 1089); Mt. Taniu-dake (June 12, 1953, H. f. & S. S., nos. 1087, 1154 & 1156).

79. **Puccinia benokiyamensis** Hiratsuka, f. in *Transact. Sapporo Nat. Hist. Soc.* XVII, p. 25, 1941.

Hab. II, III. On *AmpelYGONUM umbellatum* Masamune (*Tsurusoba*). Okinawa Isl.: Mt. Benoki-yama (April 10 & 11, 1940, Y. T., nos. 432, 435 & 436, *type!*).

80. **Puccinia breviculmis** Dietel in *Ann. Myc.* V, p. 72, 1907.

Hab. II, III. On *Carex leucochloa* Bunge (*Ao-suge*). Okinawa Isl.: Mt. Yonaha-dake (May 30, 1953, H. f. & S. S., no. 1003).